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RECORD OF REVISIONS

Rev	Date	Description	POC	OIC
0	8/16/04	Initial issue.	Kelly Bingham, <i>FWO-DECS</i>	Gurinder Grewal, <i>FWO-DO</i>
1	5/18/05	Para. 5.12.A Added filler material flow down requirements	Kelly Bingham, <i>ENG-DECS</i>	Gurinder Grewal, <i>ENG-CE</i>
2	5/17/06	Clarified use of LANL Welding Program to on-site contractors (Para. 4.2.A, & 5.1.A , & 5.2). Added 5.1.C Procurement Quality Requirements	Kelly Bingham, <i>ENG-DECS</i>	Mitch Harris, <i>ENG-DO</i>
3	10/27/06	Administrative changes only. Organization updates from LANS transition. IMP and ISD number changes based on new Conduct of Engineering IMP341. Other administrative changes.	Kelly Bingham, <i>FM&E-DES</i>	Kirk Christensen, <i>CENG</i>
4	10/01/09	Referenced new Master Specs 01 4444 & 01 4455 and Volume 6 vice GWS 1-11, and other admin changes.	Kelly Bingham, <i>ES-DE</i>	Larry Goen, <i>CENG</i>

Contact the Welding Standards POC for upkeep, interpretation, and variance issues

GWS 1-09	<u>Welding POC and Committee</u>
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GWS 1-09 CONTROL OF SUBCONTRACTED WELDING

1.0 PURPOSE AND SCOPE

- A. The purpose of this procedure is to establish the requirements and responsibilities for control of all subcontracted welding activities under the LANL Welding Program.
- B. The scope of this procedure is applicable for the management of all subcontracted welding activities at LANL, whether conducted to the LANL Welding Standards or the subcontractor's welding program as approved by LANL. This includes purchased items or goods whose failure could harm the workers, environment, or the public.

2.0 REFERENCES

1. GWS 1-02, Administrative Control of Welding
2. GWS 1-03, Welding and Brazing Material Procurement and Control
3. GWS 1-05, Welder Performance Qualification/Certification

3.0 ACRONYMS AND DEFINITIONS

None

4.0 GENERAL

4.1 Policy

- A. Consistent with GWS 1-01, *Introduction and Scope*, of this LANL Welding Program, compliance with this policy includes subcontractor participation in the LANL Program or implementation of the subcontractor's welding program, as accepted by LANL.
- B. **ONSITE WORK:** For welding on LANL site, each subcontractor and sub-tier shall implement a planned process that will assure that all welding activities are completed in accordance with the LANL Welding Program.
 1. Welders must be certified by performance qualification test at the LANL test facility using the welder qualification practices prescribed in GWS 1-05.¹
 2. Welding shall be done in accordance with LANL issued or LANL WPA-approved welding procedures.
 3. Welding and brazing materials shall be procured in accordance with the requirements of GWS 1-03.
 4. Follow LANL Master Specification Section 01 4455, On-Site Welding & Joining Requirements. This Section summarizes requirements for welding and joining on the LANL site as required by design or other sections of the Specification, consensus codes

¹ This approach to qual has proven to be the simplest, safest, and most cost-effective approach to meeting the Code requirements. Ref. "Subcontract Welder Onsite Qualification Requirement – Justification," Kelly Bingham/Tobin Oruch 8/16/04, EMref-30 and WMref-33, "Re: Onsite Qualification of Subs, Angelo to Oruch et al, 8-4-04." (Note: EMref refers to an ESM team system for managing hard-to-find references hardcopies.)

and standards, and/or engineering design. *Guidance: Specification books in the CSI format are required for certain projects by ESM Chapter 1 Section Z10, and use of Section 01 4455 is recommended for all projects and work packages involving welding.*

C. OFFSITE: For off-site welding activities:

1. The subcontractor shall have a welding program that meets the appropriate engineering specifications, applicable codes and standards, and contract requirements. Appropriate welding requirements shall also be flowed down to sub-tier contractors.
2. Alternatively, the WPA may authorize an offsite subcontractor to adopt and follow the LANL Welding Program including use of LANL Welding Procedures, qualification and certification of welders by LANL, procurement and control of filler material per GWS 1-03, and inspection of welds for acceptance.
3. Use of LANL Master Specification Section 01 4444, Off-Site Welding & Joining Requirements:
 - a. Use for all projects/procurements when welding is required by design or other sections of the Specification (e.g., items or assemblies fabricated specifically for LANL). This Section is not applicable to manufactured commercial items (“off-the-shelf”) where welding requirements are not subject to LANL approval, nor does it apply to mechanical joints (e.g., threaded, bolted or clamped).
 - b. *Guidance: Complete specification books in the CSI format are required for certain projects by ESM Chapter 1 Section Z10.*

4.2 Responsibilities

- A. The LANL WPA shall assist in the review of specifications and contract documents to assure appropriate welding program requirements are established for subcontracted construction activities at LANL as requested.
- B. The LANL WPA and the LANL Institutional Quality Group are responsible for oversight of subcontractor welding activities to assure compliance with this procedure.

5.0 PROCEDURE

5.1 General

- A. Preferred -- Each on-site subcontractor shall adopt the LANL Welding Program, use LANL welding procedures, and have its company welders qualified through the LANL Welding Training and Testing Facility. Welding filler materials shall be subject to the requirements specified in GWS 1-03 whether obtained as GFE or procured by the subcontractor. Filler material procurement requirements shall flow down to sub-tier contractors. Subcontractors may elect to use the procedures, forms, reports, checklists, et cetera, as contained in the LANL Welding Program.
- B. Alternatively -- A subcontractor holding valid ASME Code Stamp Authorizations shall maintain and implement a welding program for the control of all welding and brazing processes. The program shall describe the subcontractor’s welding program and procedures for assuring compliance with specification requirements, applicable fabrication and construction codes, contract documents, and requirements as described in Chapter 13 of the LANL Engineering Standards Manual. This will require that the subcontractor submit for LANL acceptance the following: Welding Procedure Specifications (WPS), Procedure

Qualification Records (PQR), Welder Qualification records including continuity records, reports, checklists, et cetera that shall be functionally equivalent to those described in Chapter 13 of the LANL Engineering Standards Manual.

1. The subcontractor's welding program shall be submitted for review and acceptance at the time of contract bid. Acceptance of a subcontractor's welding program shall not relieve the subcontractor of obligations and responsibilities to perform work in accordance with specification requirements and contract documents.
- C. Subcontractors performing on-site welding for ML-1 and/or 2 (nuclear safety) applications shall submit their QA program documents with their proposals for LANL review and acceptance. The subcontractor apparently successful in winning the subcontract must either:
 1. Undergo a supplier evaluation as discussed in [P 840-1](#), *Procurement Quality*, prior to subcontract award, or
 2. Be trained in and work under a LANL or LANL-approved Subcontractor QA Program, or other actions required by LANL QA-IA.

5.2 Requirements

Performance oversight of on-site subcontractors by LANL shall include:

- A. Subcontractor Pre-Work Meeting -- Prior to the start of a work element involving welding, subcontractors shall attend a "reading for understanding" meeting. The meeting shall address the following, as a minimum:
 - Quality program procedures to be followed
 - LANL, subcontractor, engineering standards/specifications, and drawings applicable for the work
 - Applicable industry codes and standards
 - Applicable welding program and procedures to be used
 - Applicable testing procedures, including NDE, to be applied
 - Applicable inspection, monitor, hold, and witness points
 - Welding or qualification records to be generated
1. These meetings shall be coordinated and conducted with the LANL WPA. Minutes of meetings shall be made and kept in the site or project files. Attendees should include appropriate contractor representatives and QA-IA or other designated, qualified LANL QA personnel to assure a uniform understanding and agreement on quality (QA/QC), welding requirements, inspections, hold points, inspection/witness authority, and required welding documentation.
- B. Certified Welding Personnel - A subcontractor welding personnel shall be tested and certified by LANL, at the LANL Test Facility, in accordance with our standards test procedures. Subcontractor organization chart shall be submitted for review and acceptance prior to contract award. The organization chart shall demonstrate that sufficient staff exists to adequately cover the scope of welding work. A list of personnel job descriptions, including weld inspection responsibilities, shall accompany the organization chart. Subcontractors shall request for welder testing and Certification by filling out Attachment 1 and coordinating with the LANL Welding Test Facility to schedule for certifications.
- C. LANL Action Request - To prevent conditions that could result in poor welding workmanship, the LANL WPA shall address the condition by forwarding a LANL Action

- Request or equivalent to the subcontractor through the LANL responsible manager (e.g., project manager or requestor). The subcontractor should respond to the concern within 24 hours. This document shall be used when less formal communications with the subcontractor have failed to be effective. Note: LANL Action Requests shall not replace a Nonconformance Report.
- D. Records Review - LANL QA-IA is responsible for performing ongoing reviews, audits, and monitoring of subcontractor welding records and reports, and coordinate resolution of quality related problem areas with the appropriate organization. Problems will be resolved by the LANL WPA and the LANL QA representative.
 - E. Third Party Inspection Organizations - Third party inspection organizations (e.g., NDE, testing laboratories) shall be approved by the LANL WPA as outline in Volume 6 and routinely monitored, surveyed and audited by LANL QA-IA to ensure that qualified and certified personnel, correct/calibrated equipment, and approved procedures are utilized to perform their scope work.
 - F. Request for Inspection - Requests for inspection shall be coordinated through the LANL WPA who has the authority to establish hold, witness, and monitor points prior to start of work. LANL inspections, monitoring, surveillances, and audits shall be performed and documented in accordance with the applicable sections of the LANL Quality Assurance Program.
 - G. Inspection and Test Equipment - Subcontractor inspection and test equipment shall be calibrated to manufacturer's recommendation and the applicable contract requirements. LANL QA-IA group shall verify compliance via routine monitoring, audit, and surveillance of subcontractor welding activities.
 - H. Project Meetings - Welding issues should be a standard topic at scheduled subcontractor meetings. The LANL WPA and the LANL QA-IA representative may attend these meetings to review and resolve welding concerns. Participation in these meetings is not a substitute for subcontractor pre-work meetings.
 - I. Additional Welding Requirements - Should the need for additional welding requirements become apparent, they shall be relayed to the subcontractor in writing. These additional welding requirements should be planned and coordinated through the LANL WPA. Cost and schedule impact of additional welding requirements should be fully addressed. Cost and schedule issues should be discussed before the requirement is relayed to the subcontractor.
 - J. Training - Members of the subcontractor welding organization shall be trained in accordance with contract requirements. Additionally, indoctrination shall be provided in the requirements of this procedure and the implementation of the subcontractor's welding program. Personnel subsequently assigned to the subcontractor welding organization shall undergo the same instruction.
 - K. Audits and Surveillance - Audits and surveillances of subcontractor welding activities shall be performed by LANL QA-IA personnel in accordance with QA procedures and contract requirements.
 - L. Nonconformance and Stop Work Reporting - Nonconformance and stop work reporting for subcontractor welding work shall be implemented in accordance with contract requirements. NOTE: Inspection by the LANL WPA or QA-IA or lack thereof, shall not relieve the subcontractor or its suppliers of their responsibility for compliance with specifications and contract documents, or constitute a waiver of the Laboratory's right to subsequently reject

defective work.

6.0 ATTACHMENTS

Attachment 1: Welder Qualification Test Request